REMARKS

In view of the following discussion, the Applicants submit that none of the claims now pending in the application are obvious under the provisions 35 U.S.C. § 103. The Applicants herein amend claim 6. Support for the amendment may be found in the Applicants' specification on at least paragraphs [0047], [0051] [0078]. Thus, the Applicants believe that all of these claims are now in allowable form.

I. REJECTION OF CLAIMS 6-10 UNDER 35 U.S.C. § 103

A. Claims 6-7

The Examiner rejected claims 6-7 as being unpatentable under 35 U.S.C. § 103 over U.S. Patent Publication 2004/0003004, published on January 1, 2004, hereinafter referred to as "Chaudhuri" in view of U.S. Patent Publication 2003/0187703, published on October 2, 2003, hereinafter referred to as "Bonissone" and in further view of U.S. Patent No. 6,088,524, issued on July 11, 2000, hereinafter referred to as "Levy." The Applicants respectfully traverse the rejection.

Chaudhuri teaches time-bound database tuning. Chaudhuri teaches time-bound tuning in database system using a query language such as Structured Query Language (SQL). (See Chaudhuri, para. [0025]).

Bonissone teaches a system for determining a confidence factor for insurance underwriting suitable for use by an automated system. (See Bonissone, Abstract).

Levy teaches a method and apparatus for optimizing database queries involving aggregation predicates. (See Levy, Abstract).

The Examiner's attention is directed to the fact that Chaudhuri, Bonissone and Levy, alone or in any permissible combination, fail to teach or suggest a method to provide a data management system comprising identifying a dominating vector of constants, $\bar{c}'$ for a given n-dimensional vector of constants $\bar{c}$, receiving a query having aggregation constraints, wherein said

PAGE 9/14 * RCVD AT 11/28/2008 5:25:13 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-5/40 * DNIS:2738300 * CSID:732 530 9808 * DURATION (mm-ss):03-26

aggregation constraints are Optimization under Parametric Aggregation Constraints (OPACs) and providing a result, wherein said result is an approximation, as positively recited by the Applicants' independent claim 6. Specifically, independent claim 6 positively recites:

> 6. A method to provide a data management system, comprising:
> preprocessing a database having a relation to produce an index, wherein said preprocessing step comprises:
> identifying a dominating vector of constants, $\bar{c}'$ for a given n-dimensional vector of constants $\bar{c}$;
> receiving a query having aggregation constraints, wherein said aggregation constraints are Optimization under Parametric Aggregation Constraints (OPACs);
> applying said index to look up a result in response to said query having aggregation constraints; and
> providing said result, wherein said result is an approximation. (Emphasis added).

In one embodiment, the Applicants' invention teaches a method to provide a data management system comprising identifying a dominating vector of constants, $\bar{c}'$ for a given n-dimensional vector of constants $\bar{c}$, receiving a query having aggregation constraints, wherein said aggregation constraints are Optimization under Parametric Aggregation Constraints (OPACs) and providing a result, wherein said result is an approximation. For example, the dominating vector of constants $\bar{c}'$ can be identified that may correspond to an OPAC query having the maximum profit. (See e.g., Applicants' specification, paragraphs [0059-0063], [0067]). By using the dominating vector, an approximate answer that is at least as good as an exact answer may be provided in response to the query. (See e.g., *Id.* at para. [0079]). This provides a more efficient technique for answering OPAC queries by trading an acceptable level of accuracy in return for efficiency. (See e.g., *Id.* at para. [0047] and [0051]).

In contrast, Chaudhuri, Bonissone and Levy alone or in any permissible combination, fail to teach or suggest a method to provide a data management

PAGE 10/14 * RCVD AT 11/28/2008 5:25:13 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-5/40 * DNIS:2738300 * CSID:732 530 9808 * DURATION (mm-ss):03-26

system comprising identifying a dominating vector of constants, $\bar{c}'$ for a given n-dimensional vector of constants $\bar{c}$, receiving a query having aggregation constraints, wherein said aggregation constraints are Optimization under Parametric Aggregation Constraints (OPACs) and providing a result, wherein said result is an approximation.

The Applicants note that Chaudhuri is not concerned with receiving queries and providing answers to the queries. Notably, Chaudhuri simply teaches a method for database tuning. That is, Chaudhuri provides a way to properly configure a database based upon various parameters, but does not teach or suggest a method for efficiently returning an answer for the query. (See Chaudhuri, Abstract, para. [0023] - [0040]). Thus, Chaudhuri fails to teach or suggest any of the above limitations above.

Moreover, the Examiner concedes that at a minimum Chaudhuri fails to teach or suggest identifying a dominating vector of constants, $\bar{c}'$ for a given n-dimensional vector of constants $\bar{c}$, receiving a query having Optimization under Parametric Aggregation Constraints (OPACs) and providing a result, wherein said result is an approximation. (See Final Office Action dated 6/27/08, pages 2-3).

The Examiner asserts that Bonissone teaches the limitations of identifying a dominating vector of constants, $\bar{c}'$ for a given n-dimensional vector of constants $\bar{c}$. However, the section cited by the Examiner only teaches the use of an n-dimensional vector. (See Bonissone, para. [0092]). Each vector in the n-dimensional vector may be assigned a weight for ranking. (See *Id.* at para. [0094]). Notably, nowhere does Bonissone teach or suggest that after the vectors are weighted and ranked that a dominating vector is identified. As noted above, in the Applicants' invention, the dominating vector may be used to approximate an answer in response to the OPAC query.

Moreover, Levy fails to bridge the substantial gap left by Chaudhuri and Bonissone. Levy appears to only teach providing an exact answer to the

PAGE 11/14 * RCVD AT 11/28/2008 5:25:13 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-5/40 * DNIS:2738300 * CSID:732 530 9808 * DURATION (mm-ss):03-26

optimization queries. In other words, Levy also fails to teach or suggest identifying a dominating vector of constants, $\bar{c}'$ for a given n-dimensional vector of constants $\bar{c}$ which allows the system to provide a result, wherein said result is an approximation. Thus, the combination of Chaudhuri, Bonissone and Levy fail to render obvious the Applicants' independent claim 6.

Furthermore, dependent claim 7 depends from independent claim 6 and recites additional limitations. For the same reasons discussed above, dependent claim 7 is also not made obvious in view of Chaudhuri, Bonissone and Levy and is allowable. As such, the Applicants respectfully request the rejection be withdrawn.

B. Claims 8-10

The Examiner rejected claims 8-10 in the Office Action under 35 U.S.C. §103 as being unpatentable over Chaudhuri in view of Bonissone and Levy and in further view of U.S. Patent No. 6,122,628, issued on September 19, 2000, hereinafter referred to as "Castelli." The Applicants respectfully traverse the rejection.

The teachings of Chaudhuri, Bonissone and Levy are discussed above. Castelli teaches multidimensional data clustering and dimension reduction for indexing and searching. (See Castelli, Abstract).

The Examiner's attention is directed to the fact that Chaudhuri, Bonissone, Levy and Castelli, alone or in any permissible combination, fail to teach or suggest the novel method to provide a data management system comprising identifying a dominating vector of constants, $\bar{c}'$ for a given n-dimensional vector of constants $\bar{c}$, receiving a query having aggregation constraints, wherein said aggregation constraints are Optimization under Parametric Aggregation Constraints (OPACs) and providing a result, wherein said result is an approximation that is within an acceptable level of accuracy, as positively claimed by the Applicants. (See *supra*).

As discussed above, Chaudhuri, Bonissone and Levy, alone or in any

PAGE 12/14 * RCVD AT 11/28/2008 5:25:13 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-5/40 * DNIS:2738300 * CSID:732 530 9808 * DURATION (mm-ss):03-26

permissible combination, fail to teach or suggest a method to provide a data management system comprising identifying a dominating vector of constants, $\bar{c}'$ for a given n-dimensional vector of constants $\bar{c}$, receiving a query having aggregation constraints, wherein said aggregation constraints are Optimization under Parametric Aggregation Constraints (OPACs) and providing a result, wherein said result is an approximation. Moreover, Castelli fails to bridge the substantial gap left by Chaudhuri, Bonissone and Levy because Castelli also fails to teach or suggest a method to provide a data management system comprising identifying a dominating vector of constants, $\bar{c}'$ for a given n-dimensional vector of constants $\bar{c}$, receiving a query having aggregation constraints, wherein said aggregation constraints are Optimization under Parametric Aggregation Constraints (OPACs) and providing a result, wherein said result is an approximation. Castelli only teaches multidimensional data clustering and dimension reduction for indexing and searching. (See Castelli, Abstract). Thus, for all of the above reasons, the Applicants respectfully contend that claim 6 of the present invention is not made obvious by the combination of Chaudhuri, Bonissone, Levy and Castelli.

Furthermore, dependent claims 8-10 depend, either directly or indirectly, from claim 6 and recite additional limitations. As such, and for the exact same reason set forth above, the Applicants submit that claims 8-10 are also patentable and not made obvious by the teachings of Chaudhuri, Bonissone, Levy and Castelli. As such, the Applicants respectfully request the rejection be withdrawn.

CONCLUSION

Thus, the Applicants believe that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring the maintenance of the present final action in any of the claims now

PAGE 13/14 * RCVD AT 11/28/2008 5:25:13 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-5/40 * DNIS:2738300 * CSID:732 530 9808 * DURATION (mm-ss):03-26

pending in the application, it is requested that the Examiner telephone Mr. Kin-Wah Tong, Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully Submitted,

November 28, 2008

Patterson & Sheridan, LLP
595 Shrewsbury Avenue
Shrewsbury, New Jersey 07702

Kin-Wah Tong, Attorney
Reg. No. 39,400
(732) 530-9404

PAGE 14/14 * RCVD AT 11/28/2008 5:25:13 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-5/40 * DNIS:2738300 * CSID:732 530 9808 * DURATION (mm-ss):03-26